CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listing, of claims in the application:

1. (Currently Amended) A method of determining the approximate amount of coliform bacteria in water having an actual amount of coliform bacteria therein from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges (i) from about 0.53 μm to about 0.60 μm ; (ii) from about 0.63 μm to about 0.69 μm; and (iii) from about 0.76 μm to about 0.90 μm; and

(b) determining the approximate amount of said coliform in said water from said respective amount of light by applying an algorithm, using a microprocessor, relating said respective amount of light in said at least three wavelength ranges to the amount of coliform bacteria in said water, wherein said algorithm comprises a linear relationship between said approximate amount of said coliform in said water and the sum of at least one ratio of the amount of light in one of said wavelength ranges to the amount of light in another of said wavelength ranges.

2. (Previously Presented) A method according to claim 1 wherein said at least three wavelength ranges are all in the visible and infrared ranges.

3. (Previously Presented) A method according to claim 1 wherein said measurements from ranges (i), (ii) and (iii) are three light measurements, said algorithm

comprises a linear relationship between said approximate amount of said coliform in said water and the sum of (a) the ratio of one of said light measurements to a second of said light measurements and (b) the ratio of the second of said light measurements to the third of said light measurements.

4. (Previously Presented) A method according to claim 1 wherein said at least three wavelength ranges are detectable by a silicon detector.

5. (Previously Presented) A method according to claim 1 wherein said measurement of the amount of light in said at least three wavelength ranges comprises the measurement, respectively, of: (i) LANDSAT TM band 2, (ii) LANDSAT TM band 3 and (iii) LANDSAT TM band 4.

6. (Previously Presented) A method according to claim 1 wherein said algorithm is: $X \approx K_1 + (K_2 \times (R32)) + (K_3 \times (R43))$ wherein:

X is the approximate amount of coliform bacteria expressed in colonies per milliliter;

K_1 is a value in the range of from about -175 to about –350;

K_2 is a value in the range of from about 250 to about 350;

K_3 is a value in the range of from about 200 to about 350;

R32 is the value of LANDSAT TM band 3 divided by LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R43 is the value of LANDSAT TM band 4 divided by LANDSAT TM band 3, after subtraction for atmospheric haze separately in each band.

7. (Original) A method according to claim 6 wherein:

X is the amount of coliform bacteria expressed in colonies per milliliter;

K_1 is a value in the range of from about -200 to about –300;

K_2 is a value in the range of from about 275 to about 325;

K_3 is a value in the range of from about 225 to about 275;

R32 is the value of the amount of light of LANDSAT TM band 3 divided by the value of the amount of light of LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R43 is the value of the amount of light of LANDSAT TM band 4 divided by the value of the amount of light of LANDSAT TM band 3, after subtraction for atmospheric haze separately in each band.

8. (Original) A method according to claim 6 wherein:

X is the amount of coliform bacteria expressed in colonies per milliliter;

K_1 is a value in the range of from about -265 to about –275;

K_2 is a value in the range of from about 300 to about 320;

K_3 is a value in the range of from about 225 to about 275;

R32 is the value of the amount of light of LANDSAT TM band 3 divided by the value of the amount of light of LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R43 is the value of the amount of light of LANDSAT TM band 4 divided by the value of the amount of light of LANDSAT TM band 3, after subtraction for atmospheric haze separately in each band.

9. (Original) A method according to claim 1 wherein the calculated value of coliform correlates to the actual measured amount of said coliform in said water by a correlation value in excess of 60%.

10. (Original) A method according to claim 1 wherein the calculated value of coliform

correlates to the actual measured amount of said coliform in said water by a correlation value in excess of 80%.

11. (Previously Presented) A method according to claim 6 wherein the calculated value of X correlates to the actual measured amount of said coliform in said water by a correlation value in excess of 60%.

12. (Previously Presented) A method according to claim 6 wherein the calculated value of X correlates to the actual measured amount of said coliform in said water by a correlation value in excess of 80%.

13. (Original) A method according to claim 1 additionally comprising the step of generating a report of said approximate amount of said coliform in said water.

14. (Original) A method according to claim 5 additionally comprising the step of generating a report of said approximate amount of said coliform in said water.

15. (Previously Presented) A method according to claim 1 wherein said measurement takes place at a first site and said determination takes place at a second site remote from said first site and additionally comprising the step of transmitting data relating to the approximate amount of said coliform in said water from said first site to said second site.

16. (Original) A method according to claim 5 additionally comprising the step of transmitting data relating to the approximate amount of said coliform in said water to a site remote from the site where said measurement takes place.

17. (Previously presented) A method of determining the presence of coliform bacteria in water from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges comprising, respectively: (i) LANDSAT TM band 2, (ii) LANDSAT TM band 3 and (iii) LANDSAT TM band 4; and (b) relating the approximate amount of said coliform in said water to said respective amount of light by applying an algorithm, using a microprocessor, determining the amount of coliform bacteria in said water from said respective amounts of light in said at least three wavelength ranges by applying an algorithm, using a microprocessor, relating said respective amount of light in said at least three wavelength ranges to the amount of coliform bacteria in said water, wherein said algorithm is: $X \approx K_1 + (K_2 \times (R32)) + (K_3 \times (R43))$ wherein:

X is the approximate amount of coliform bacteria expressed in colonies per milliliter;

K_1 is about -270;

K_2 is about 315;

K_3 is about 250;

R32 is the value of the amount of light of LANDSAT TM band 3 divided by the value of the amount of light of LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R43 is the value of the amount of light of LANDSAT TM band 4 divided by the value of the amount of light of LANDSAT TM band 3, after subtraction for atmospheric haze separately in each band.

18. (Original) A method according to claim 17 additionally comprising the step of generating a report of said approximate amount of said coliform in said water.

19. (Original) A method according to claim 17 additionally comprising the step of transmitting data relating to the approximate amount of said coliform in said water to a site remote from the site where said measurement takes place.

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94. (Previously presented) A method of determining the approximate amount of coliform bacteria in water having an actual amount of coliform therein from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges (i) from about 0.53 μm to about 0.60 μm ; (ii) from about 0.63 μm to about 0.69 μm; and (iii) from about 0.76 μm to about 0.90 μm;

(b) transmitting data relating to said measurement to a site remote from said measurement device and

(c) determining the approximate amount of said coliform in said water from said respective amount of light at said remote site by applying an algorithm, using a microprocessor, relating said respective amount of light in said at least three wavelength ranges to the amount of coliform bacteria in said water.

95. (Previously Presented) A method according to claim 94 additionally comprising the step of generating a report of said approximate amount of said coliform in said water.

96. (Previously presented) A method of determining the presence of E. Coli. in water from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges: (i) from about 0.52 μm to about 0.60 μm; (ii) from about 0.76 μm to about 0.90m; and (iii) from about 1.55 μm to about 1.75 μm; and

(b) relating the approximate amount of said E. Coli. in said water from said respective amounts of light by applying an algorithm, using a microprocessor, relating said respective amounts of light in said at least three wavelength ranges to the amount of E. Coli. colonies in said water.

97. (Previously Presented) A method according to claim 1 wherein said measurement of the amount of light in said at least three wavelength ranges comprises the measurement, respectively, of: (i) LANDSAT TM band 2, (ii) LANDSAT TM band 4, and (iii) LANDSAT TM band 5.

98. (Previously Presented) A method according to claim 96 wherein said algorithm is $X \approx K_1 + (K_2 \times (R42)) - (K_3 \times (R52)) + (K_4 \times (R54))$ and equivalents wherein:

X is the approximate amount of E. Coli. expressed in colonies per 100 ml;

K_1 is a value in the range of from about -220 to about -420;

K_2 is a value in the range of from about 1750 to about 1950;

K_3 is a value in the range of from about 1130 to about 1330;

K_4 is a value in the range of from about 100 to about 300;

R42 is the value of LANDSAT TM band 4 divided by LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band;

R52 is the value of LANDSAT TM band 5 divided by LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R54 is the value of LANDSAT TM band 5 divided by LANDSAT TM band 4, after subtraction for atmospheric haze separately in each band.

99. (Previously Presented) A method according to claim 98 wherein:

K_1 is a value in the range of from about -300 to about -400;

K_2 is a value in the range of from about 1825 to about 1875;

K_3 is a value in the range of from about 1170 to about 1290;

K_4 is a value in the range of from about 175 to about 250;

100. (Previously Presented) A method according to claim 98 wherein:

K_1 is a value in the range of from about -310 to about -330;

K_2 is a value in the range of from about 1860 to about 1870;

K_3 is a value in the range of from about 1220 to about 1250; and

K_4 is a value in the range of from about 200 to about 220.

101. (Previously Presented) A method according to claim 96 wherein the calculated value of E. Coli. correlates to the actual measured amount of said E. Coli. in said water by a correlation value in excess of 60%.

102. (Previously Presented) A method according to claim 96 wherein the value of E.

Coli. correlates to the actual amount of said E. Coli. in said water by a correlation value in excess of 70%.

103. (Previously Presented) A method according to claim 100 wherein the value of X correlates to the actual amount of said E. Coli. in said water by a correlation value in excess of 60%.

104. (Previously Presented) A method according to claim 100 wherein the value of X correlates to the actual amount of said E. Coli. in said water by a correlation value in excess of 70%.

105. (Previously Presented) A method according to claim 96 wherein said measurement takes place at a first site and said determination takes place at a second site remote from said first site and additionally comprising the step of transmitting data relating to the approximate amount of said E. Coli. in said water from said first site to said second site.

106. (Previously presented) A method according to claim 100 additionally comprising the step of transmitting data relating to the approximate amount of said E. Coli. in said water to a site remote from the site where said measurement takes place.

107. (Previously presented) A method of determining the presence of E. Coli. in water from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges comprising, respectively: (i) LANDSAT TM band 2, (ii) LANDSAT TM band 3, and (iii) LANDSAT TM band 5; and (b) relating the approximate amount of said E. Coli. in said water to

said respective amount of light by applying an algorithm, using a microprocessor, relating said respective amount of light in said at least three wavelength ranges to the amount of E. Coli. in said water, wherein said algorithm is $X \approx K_1 + (K_2 \times (R42)) - (K_3 \times (R52)) + (K_4 \times (R54))$ and equivalents wherein:

X is the approximate amount of E. Coli. expressed in colonies per 100 ml;

K_1 is a value of about -321;

K_2 is a value of about 1864;

K_3 is a value of about 1235;

K_4 is a value of about 213;

R42 is the value of LANDSAT TM band 4 divided by LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band;

R52 is the value of LANDSAT TM band 5 divided by LANDSAT TM band 2, after subtraction for atmospheric haze separately in each band; and

R54 is the value of LANDSAT TM band 5 divided by LANDSAT TM band 4, after subtraction for atmospheric haze separately in each band.

108. (Previously Presented) A method according to claim 96 additionally comprising the step of generating a report of said approximate amount of said E. Coli.

109. (Previously Presented) A method according to claim 96 additionally comprising the step of transmitting data relating to the approximate amount of said E. Coli. expressed in micrograms per liter in said water to a site remote from the site where said measurement takes place.

110. (Previously presented) A method of determining the presence of E. Coli. in water from light reflected therefrom, said method comprising the steps of:

(a) obtaining a measurement of reflected light from said water, using a light measurement device, said measurement comprising a measurement of the respective amount of light in at least three wavelength ranges: (i) from about 0.52 μm to about 0.60 μm; (ii) from about 0.76 μm to about 0.90m; and (iii) from about 1.55 μm to about 1.75 μm;

(b) transmitting data relating to said measurement to a site remote from said measurement device; and

(c) determining the approximate amount of said E. Coli. in said water to said respective amounts of light at said remote site by applying an algorithm, using a microprocessor, relating said respective amounts of light in said at least three wavelength ranges to the amount of E. Coli. in said water.

111. (Previously Presented) A method according to claim 110 additionally comprising the step of generating a report of said approximate amount of said E. Coli. in said water.